AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the Application. No new matter is introduced by way of the claim amendments. Current additions to the claims are noted with underlined text. Current deletions from the claims are indicated by text ~~strikethrough~~. The status of each claim is indicated in parenthetical expression following the claim number.

WHAT IS CLAIMED IS:

1. (Previously Amended) A method for functionalizing carbon nanotubes comprising: a) selecting a plurality of carbon nanotubes; and b) reacting said plurality of carbon nanotubes at the sidewall carbon atoms with an organic functionalizing agent in the absence of a solvent.

2. (Original) The method of claim 1, wherein the organic functionalizing agent is selected from the group consisting of diazonium species, aryl radicals, alkyl radicals, aryl carbocations, aryl carbanions, alkyl carbanions, alkyl carbocations, 1,3-dipoles, carbenes, heteroatom-containing radicals, heteroatom-containing cations, heteroatom-containing anions, ylides, benzyne, dienes, dienophiles, organozincates, carbenes, Grignard reagents, Gillman reagents, organolithium reagents, and combinations thereof.

3. (Original) The method of claim 1, wherein the carbon nanotubes are functionalized between about 1 functional group per 1000 carbon atoms of the carbon nanotubes and about 1 functional group per 5 carbon atoms of the carbon nanotubes.

4. (Original) The method of claim 1, wherein the carbon nanotubes are selected from the group consisting of single-wall carbon nanotubes, multi-wall carbon nanotubes, and combinations thereof.

5. (Original) The method of claim 1, wherein the carbon nanotubes are single-wall carbon nanotubes.

6. (Original) The method of claim 1, wherein the carbon nanotubes range in diameter between about 0.7 nm and about 2.0 nm.

7 – 9. (Cancelled).

10. (Previously Amended) The method of claim 1 – 8 or 9, wherein the step of reacting further comprises adding a polymer to effect an in situ blending

11. (Previously Amended) The method of claim 1 – 9 or 10, wherein the step of reacting further comprises mixing the plurality of carbon nanotubes and the organic functionalizing agent.

12. (Original) The method of claim 11, wherein the mixing comprises a mechanical operation.

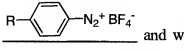
13. (Previously Amended) The method of claim 12, wherein the mechanical operation is selected from the group consisting of ball milling, stirring, shaking, high shear mixing, twin-screw mixing, and combinations thereof.

14. (Previously Amended) The method of claim 1 – 12 or 13, wherein the organic functionalizing agent is a reactive diazonium specie.

15. (Previously Amended) The method of claim 14, wherein the reactive diazonium specie is generated from an aryl diazonium salt.

16. (Original) The method of claim 15, wherein the aryl diazonium salt is selected from the group consisting of ortho-substituted aryl diazonium salts, meta-substituted aryl diazonium salts, para-substituted aryl diazonium salts, and combinations thereof.

17. (Currently Amended) The method of claim 15, wherein the aryl diazonium salt comprises:

~~6~~  and wherein R is selected from the group consisting of halogen, nitro, cyano, alkyl, aryl, arylalkyl, hydroxy, carboxylic ester, carboxylic acid, thiocarbonate, amide, alkoxy, polyether, polyalkyl, hydroxyalkyl, and combinations thereof.

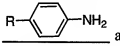
18. (Original) The method of claim 15, wherein the aryl diazonium salt is selected from the group consisting of di-substituted aryl diazonium salts, tri-substituted aryl diazonium salts, tetra-substituted aryl diazonium salts, penta-substituted aryl diazonium salts, and combinations thereof.

19. (Previously Amended) The method of claim 15, wherein the diazonium specie is generated in situ from an aniline derivative and an alkyl nitrite species.

20. (Previously Amended) The method of claim 15, wherein the diazonium specie is generated in situ from an aniline derivative and an inorganic nitrite in the presence of an acid.

21. (Previously Amended) The method of any one of claims 19 or 20, wherein the aniline derivative is selected from the group consisting of ortho-substituted anilines, meta-substituted anilines, para-substituted anilines, and combinations thereof.

22. (Previously Amended) The method of any one of claims 19 or 20, wherein the aniline derivative is selected from the group consisting of di-substituted anilines, tri-substituted anilines, tetra-substituted anilines, penta-substituted anilines, and combinations thereof.

23. (Currently Amended) The method of any one of claims 19 or 20, wherein the aniline derivative comprises:  and wherein R is selected from the group consisting of halogen, nitro, cyano, alkyl, aryl, arylalkyl, hydroxy, carboxylic ester, carboxylic acid, thiocarbonate, amide, alkoxy, polyether, polyalkyl, hydroxyalkyl, and combinations thereof.

24. (Original) The method of claim 20, wherein the inorganic nitrite is sodium nitrite.

25. (Previously Amended) The method of claim 20 – 23 or 24, wherein the acid is selected from the group consisting of sulfuric acid, acetic acid, hydrochloric acid, nitric acid, phosphoric acid, toluenesulphonic acid, trifluoroacetic acid, and combinations thereof.

26 – 44. (Cancelled).